UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/634,053	08/08/2000	Timothy M. Schmidl	TI-30586	4790

7590 11/10/2003

Ronald O Neerings
Texas Instruments Incorporated
P O Box 655474 M/S 3999
Dallas, TX 75265

EXAMINER	
AHN, SAM K	

ART UNIT	PAPER NUMBER
2634	4

DATE MAILED: 11/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/634,053	SCHMIDL ET AL.	
	Examiner	Art Unit	
	Sam K Ahn	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 August 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 11, 15, 20 and 24-26, lines 6-7, 4, 8-9, 8 and 1-2, respectively, recite the limitation "plurality of nearest future transmissions". It is unclear as to what is meant by nearest future transmissions.

Claims 1, 2, 4-9, 12, 14, 15, 20 and 24-26 recite the limitation "said one transmission" in lines 10-11, 5, 2, 3, 2, 2, 2, 2, 1, 2-3, 14, 8, and 1 respectively. There is insufficient antecedent basis for this limitation in the claim.

Claims 12, 17 and 22 recite the limitation "immediately timewise adjacent", in line 2. It is unclear as to what is meant by this limitation.

Claims 3, 10, 13, 16, 18, 19, 21 and 23 directly or indirectly depend on claims 1, 15 or 20.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 6-11, 13, 15, 16, 18-21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rodgers ('751).

Regarding claims 1, 15 and 20, Rodgers teaches a method and apparatus of controlling wireless communications between a first and a second frequency hopping wireless communication device. (see Fig.1) Rodgers further teaches the first device (22A in Fig.1) sending through its antenna (22A) to the second device (22B) receiving through its antenna (22B) a first transmission (a request for transmission, note col.5, lines 15-25), the second device receiving the first transmission (request) and providing communication quality measurements respectively associated with receipt of the first transmission (see Fig.4, where the second device estimates interference energy level on the frequencies in the hop set, including the frequency used by the first device to transmit the request or the first transmission). Rodgers then teaches, based on the communication quality measurements, the second device sending a transmission to the first device. Although Rodgers does not explicitly disclose that the second device transmits to the first device on the first frequency, by analyzing Fig.4, one skilled in the art would understand that under certain condition, the frequency used by the first device may have resulted in having the best quality measurement, and therefore, would have been selected by the second device

to transmit a transmission to the first device. Therefore, it would have been obvious to one skilled in the art at the time of the invention to send transmission from the second device to the first device in the first frequency as it would have less chance of being interfered by noise.

Furthermore, Rodgers does not explicitly disclose the first device transmitting a request to the second device in the first frequency. However, the two devices have a frequency hopping set, as taught by Rodgers (16 in Fig.4) where the second device tunes to the first frequency in receive the request. Otherwise, the second device would not have known to tune into the first frequency to receive the request. Therefore, it is inherent that the two devices operate transmitting and receiving in the first frequency.

Regarding claims 6-9, 11 and 18, Rodgers teaches all subject matter claimed, as applied to claim 1 or 15. Rodgers teaches exemplifies the invention using three devices. (see Fig.1) However, number of devices that may be used together is not limited to three. And the further steps of sending transmission between devices are not novel as one skilled in the art would design the devices to transmit and receive between devices by setting priorities. Therefore, it would have been obvious to one skilled in the art at the time of invention to assign devices to function as claimed for the purpose of setting priorities as which transmission to which device must be followed.

Regarding claims 10, 13, 19 and 23, Rodgers teaches all subject matter claimed, as applied to claim 1, 9, 15 or 20. Rodgers teaches frequency hopping communication

system. Bluetooth also operates in the common way. Moreover, the system taught by Rodgers may operate as a slave or a master device, as any device initiating or receiving a transmission may be configured to be a master or a slave device.

Regarding claims 16 and 21, Rodgers teaches all subject matter claimed, as applied to claim 15 or 20. As both devices know the frequency hopping pattern, it is inherent that the second device knows what the next frequency would be in receiving the next transmission from the first device.

3. Claims 2, 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rodgers ('751) in view of Hakkinen et al. ('459).

Regarding claim 2, Rodgers teaches all subject matter claimed, as applied to claim 1. Rodgers teaches, as explained above, receiving the first transmission via its antenna and providing communication quality measurements respectively associated with receipt of the first transmission and sending a transmission to the first device on the first frequency. However, Rodgers does not teach using plurality of antennas. Hakkinen teaches, in the same field of endeavor, providing quality measurements (see 41 in Fig.4). Hakkinen further teaches that plurality of antennas may be implemented by placing them physically apart. Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Rodgers' teaching of a single antenna and placing two or more antennas physically apart for the purpose of reducing fading effects, as taught by Hakkine. (note col.2, lines 56-65)

Regarding claim 5, Rodgers in view of Hakkinen teach all subject matter claimed, as applied to claim 2. Hakkinen further teaches selecting on of the antennas based on the communication quality measurements (see Fig.5) where the next transmission would implement the antenna with the best quality measurement.

Regarding claim 14, Rodgers teaches all subject matter claimed, as applied to claim 1. However, Rodgers does not teach changing a transmission power level based on the communication quality measurement. Hakkinen teaches this limitation. (see Fig.4) Therefore, it would have been obvious to one skilled in the art at the time of invention to change the power level depending on the quality of the signal path for the purpose of reducing interference that may be imposed to other devices when transmission power is too high, or effectively transmit with enough power to be received by the receiving device.

Allowable Subject Matter

4. Claims 3 and 4 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter: Present application discloses a method and apparatus operating in a wireless communication

environment where plurality of devices transmit and receive signals in a frequency hopping sequence. The received device performs quality measurement on the frequency used by the transmitted device. The received device further comprises plurality of antennas where the device selects an antenna through the quality measurement and further, weighting coefficients are calculated based on the communication quality measurements. Prior arts, Rodgers and Hakkinen teach in the same field of endeavor, disclosing all the elements recited in this instant application. However, Rodgers nor Hakkinen discloses the teaching of calculating weighting coefficients for the respective antennas based on the quality measurements. Therefore, prior art does not teach the limitations recited on claim 3.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Haartsen, Hlasny and Nevo et al. teach systems employing frequency hopping sequence in a Bluetooth environment.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Sam Ahn** whose telephone number is **(703) 305-0754**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at **(703) 305-4714**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

P.O. Box 1450

Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Sam K. Ahn
10/29/03

YOUNG T. TSE
PRIMARY EXAMINER